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AUTHOR Thompson, Mark E.
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ABSTRACT

This essay briefly presents the evolution of technology and the resulting warnings that many prominent writers have offered in defense of an analytic inquiry into man's interaction with technology. Various ways in which technology has been used to manipulate people are described, e.g., Vietnam, Watergate, the CIA, the Tuskegee Study, Subliminal Seduction, and Nuclear Weapons. The reader is warned that sophisticated technology needs to be carefully controlled, and society should not become too dependent on it. (Author/RAC)

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ED168604

Please send all corespondence to:

Mark E. Thompson, Ed.D.
620 Wichita Drive
Lexington, KY 40503

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TECHNOLOGY AS A CRAFT OF DECEIT

by

Mark E. Thompson

(Affiliated with Kentucky State University
as an Adjunct Professor)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

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ABSTRACT

This essay briefly presents the evolution of technology with numerous warnings from prominent writers (Bergson, y Gasset, Hoffer, Huxley, Polanyi, Toynbee, and others). An attempt is made to demonstrate that technology has been used to manipulate people in various ways (Vietnam, Watergate, the CIA, the Tuskegee Study, Subliminal Seduction, and Nuclear Weapons). There is considerable documentation to indicate that people in leadership positions have a great deal of control over events via technology. An objective of this essay is to make the reader aware that sophisticated technology needs to be carefully controlled, and society should not become too dependent on it.

Technology as a Craft of Deceit

The word technology is from the Greek technologia, meaning a systematic treatment. Science is a department of systematized knowledge whereby individuals observe and classify facts. Often science develops theories, laws, and propositions that can be applied to human affairs. This application of scientific knowledge has resulted in the development of technology--an applied science.

Walter Lippmann said, "Science is the occupation of absent-minded professors, of difficult and unsociable persons, wise enough, no doubt, but not altogether in their right minds."[1] Persons working at the so-called scientific method often become narrow and confined within their work and may indeed become difficult and unsociable. A major problem for our society is not the difficult and unsociable scientists, but the technologies that have been made available to us. Technology can be used to control and manipulate the public. Some major offenders are politicans, bureaucrats, and business people. One's intent has nothing to do with the fact that technology today is potentially dangerous to everyone in the world. Nuclear destruction with sophisticated weapons is a real possibility for all of us. This is the ultimate in destruction but certainly not the only method technology has of doing great harm to humans and their environment. There are other aspects of technology that are subtle but quite powerful and dangerous in the hands of human beings. The human problem relates to the fact that people are not consistently humane, honest, or reasonable. Technology can be controlled or abused by humans.

"We have not earned this self-conferred title homo sapiens. We have shown little wisdom, so far, in controlling ourselves and in managing our relations with each other. If we succeed in surviving the present technological revolution, we may at last become homo sapien in truth as well as in name."[2]

In our history an evolution of the human mind created what has come to be known as reason. The concept of reason has flourished and produced modern thought.

> Modern thought in the widest sense emerged with the emanicipation of the human mind from a mythological and magical interpretation of the universe. We know when this first happened, at what place and by what method. This act of liberation was due to the Ionian philosophers who flourished in the sixth century B.C. They were succeeded by other philosophers of Greece covering a period of a thousand years.[3]

The development of reason has been the basis of scientific and technological progress. Humans have come to think that reason will lead to truth, and truth will liberate society for the benfit of all. This kind of rhetoric has been presented to one generation after another beginning around 1600. Society has come to believe this line of thinking; however, sophisticated technical approaches do not always produce truth or liberate us from oppressive forces. A subtle form of oppression is now in operation, and technology makes it possible.

Through the ages and in most cultures, a craving for control over nature helped to develop reason, logic, and science, which eventually produced modern technology. This development of science and technology made rapid progress in the Western cultures but was not confined to that part of the world. At the time of Plato, Chinese technology was in many respects considerably superior to that of the Greeks. Certain works of Egyptian engineers surpass miracles wrought by Western civilization. It has been said that technology in the fullness of its maturity began around 1600 when theoretical thinking about the world came to regard it as a machine. Modern technology has been linked with

the work of Galileo (an Italian astronomer, mathematician, and physicist also known as the father of mechanics as a science), Descartes (a French philosopher and scientist), and Huygens (a Dutch astronomer). These men formulated a mechanical interpretation of the universe.[4] This interpretation flourished during the Renaissance of the seventeenth century. "The Renaissance is the parturient disquiet of a new confidence based on physico-mathematical science, the new mediator between man and the world."[5] Polanyi has concluded that modern science is the outcome of a rebellion against all authority. "Descartes led the way by his programme of universial doubt: de omnibus dubitandum. The Royal Society was founded with the motto: Nullius in verba, We accept no authority."[6]

In attempting to explain the growth of science and technology, Toynbee said, "In any field of human endeavor, stagnation and regression and advance are all equally possible at any stage. The reason why science has advanced so portentously with the last three centuries, and technology within the last two centuries, is because a larger number of people than ever before have taken up these activities. . . it has been estimated that about ninety-seven percent of all the scientists who have ever lived are alive at this moment."[7] People crave material goods and comfort, and at another level, politicians and bureaucrats crave power; technology may help to satisfy some of these desires. It happens that technology breeds more technology, and no one is content for long. Nations want power and people want material goods, so there is no stopping the growth of technology. The growth of technology is often camouflaged under the term progress. It should be emphasized that, ". . . the concept of 'human necessity' is fundamental for the understanding of technology."[8]

There have been a considerable number of warnings directed to the world community regarding the dangers of technology. These cautions have had little impact. Early in this century Bergson was giving attention to the concept of

freedom and its relation to science. J. Alexander Gunn, while attempting to explain Bergson, said, "Matter is our enemy and threatens our personality in its spiritual reality by a tendency to lead us into habit, away from life, freedom and creativeness."[9] Around 1908 Bergson identified the dilemna imposed by science: "Though united in popular thought, the ideas of free effort and necessary determination are kept apart by physical science."[10] Modern technology has tended to mold individuals into consumers, and it has created competition among nations for sophisticated military hardware. Technology and jingoism feed each other; McCarthyism in the 1950s is a good example. As technology grows more powerful, there is a tendency to become more dependent, less dynamic, and paranoid. These modern afflictions creep into society and cause a metamorphosis that becomes difficult to reverse. Technology can deceive us by offering a false sense of security; we slowly cease to depend on our natural instincts (human characteristics). Society becomes vulnerable through technological manipulation. Individual freedom can be subdued by powerful technologies in the hands of the plutocrat.*

After the horror of World War I, a war to end all wars, there were numerous warnings. In the 1930s Aldous Huxley, a brilliant English writer and social critic with an understanding of technology and human events, said, "The twentieth [century] has already witnessed the rise and fall of the liberal man and the god-like Leader."[11] Prophetically, Huxley goes on to say, "Technological advance is rapid. But without progress in charity, technological advance is useless. Indeed, it is worse than useless. Technological progress has merely provided us with more efficient means for going backwards."[12]

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*Herbert Marcuse has expounded on this theme with an in-depth analysis of Modern man. "In the social reality, despite all change, the domination of man by man is still the historical continuum that links pre-technological and technological Reason" (p. 144, Herbert Marcuse. One-Dimensional Man. Boston: Beacon Press, 1964).

Huxley advises educators to ". . . do all they can, while there is yet time, to build up in the minds of their charges a habit of resistance to suggestion. If such resistance is not built up, the men and women of the next generation will be at the mercy of any skillful propagandist who contrives to seize the instruments of information and persuasion."[13]

Media exploitation, most noticeable through television, is responsible for the public's defined "truth" on numerous subjects. Politicians are vivid, in many cases, only through a media image created by shrewd moneygrubbers that can be found in the communications market place. Entertainers, business people, and politicans frequently attempt to create an image for themselves via media technology. The effort and competition to maintain an image are vicious. One's credibility often depends on the technocratic image maker.

José Ortega y Gasset identified three main periods in the evolution of technology: technology of chance, technology of the craftsman, and technology of the technician. He said ". . . the development of both, science and technology, has been miraculous. But human life is not only a struggle with nature; it is also the struggle of man with his soul."[14] This aspect of human nature is a unique quality that is usually overlooked through the technical aura that produces a confident superiority. Technology has presented itself as a cure-all for many problems, but in fact, it now threatens to destroy civilization on many fronts. "The idea of progress, placing truth in a vague tomorrow, has proven a dulling opiate to humanity. Truth is what is true now and not what remains to be discovered in an undetermined future."[15] In the 1930s y Gasset said that ". . . present-day man is secretly frightened by his own omnipotence."[16] This fear has been enhanced since the 1930s, and today we live in a society that in many ways is out of control; it is chaotic. Individuals must be informed and flexible in order to cope.

After World War II, warnings to the public about technology took on a hint of fatalistic despair.

> In an article in his newspaper, Combat, November, 1948, Albert Camus sums up the modern age by saying that the seventeenth century was the age of mathematics, the eighteenth that of the physical sciences, the nineteenth that of biology, and "Our twentieth century is the century of fear." Fear, he adds, is not a science, but science has had a hand in the matter, since its latest theories have led science to contradict itself, and its practical advances menace the earth with destruction. Furthermore, even if fear is not a science, there is no doubt that in unscrupulous hands fear is a technique.[17]

Indeed fear is a technique that has been used quite successfully by politicians and common hucksters. In 1959 the Democrats claimed there was a missle gap in our technological weapons race with the Soviet Union.[18] The implication was that the United States was behind Russia in missile technology used to deliver atomic weapons. This theme was used by Kennedy to discredit the Eisenhower administration, and no doubt, it frightened many voters. When Kennedy came into office it was reported that there was no missile gap. In fact, the Secretary of Defense, Robert S. McNamara, made the announcement after a study of our military strength. "On February 7, 1961, the news broke that there was no missile gap, and it was quickly established that Mr. McNamara had said it."[19] The Kennedy administration went to Congress on March 28,1961 requesting more missiles, even though a little more than a month earlier, their own study indicated there was no missile gap. Dr. Ralph E. Lapp, a respected nuclear physicist, said, "Kennedy's decision to boost the U.S. missile forces must have overjoyed the aerospace industry, but it may also have marked a turning point in the arms race."[20] On September 18, 1967, Mr. McNamara reflected on these events and said, "Clearly, the Soviet build-up is in part a reaction to our own build-up since the beginning of this decade."[21] This proliferation of nuclear weapons technology is a frightening, genuine danger that has been created by humans.

Henry A. Kissinger in the mid-1950s expressed concern about the implications of nuclear technology: "Moreover, there is no 'secret' about the manufacture of nuclear weapons or even of thermonuclear devices. Given a certain level of technology, any industrialized state will be able to produce them."[22] Today, known nuclear powers include: the United States, the Soviet Union, Britain, China, France, and India. Many experts believe Israel has nuclear weapons, but for political reasons chooses not to declare herself a nuclear power. "According to present plans, some forty countries will have nuclear energy programs by 1985. Each program would produce enough nuclear material for three or more bombs. Most of them would have enough material for thirty or more bombs."[23] This technological cyclops in the form of nuclear weapons is becoming more and more of a problem as the proliferation continues. "To every step of scientific progress there is attached an element of uncertainty regarding its scope and scientific value."[24]

In the early 1950s Eric Hoffer commented on the evils of technology: "Thus, despite its spectacular achievements in science and technology, the twentieth century will probably be seen in retrospect as a century mainly preoccupied with the mastery and manipulation of men."[25] About 25 years later, after considerable political and social turmoil, Hoffer had this to say about technology: "A triumphant technology ushers in a psychological age, and history is made not by the hidden hand of circumstances but by men. For the mass of people the denouement of technological progress is a passage from servitude to things to the more demeaning servitude to men."[26] Hoffer is also quite suspicious of power and its aims: "Even in the freest society power is charged with the impulse to turn men into precise, predictable automata. When watching men of power in action it must be always kept in mind that, whether they know it or not, their main purpose is the elimination or neutralization

of the independent individual--the independent voter, consumer, worker, owner, thinker--and that every device they employ aims at turning man into a manipulatable 'animated instrument,' which is Aristotle's definition of a slave."[27]

People in powerful positions are now more dangerous than ever before, because a multitude of technologies are available to control and manipulate events with precision. It is also true that power can now be used in a subtle fashion. Another problem is that humans now have the power to wage global war with the effort required to push a button or give a command. Nuclear war, with the possibility of total destruction, is a real fact of life that can happen with little or no warning.

A few examples from contemporary events will be presented to support the assertion that manipulation of people through technology now takes place on a grand scale with devastating results.

The Vietnam War. Our national leaders misled the public in this tragic effort with few reservations. Official government documents recorded this deceit.[28] David Halberstam has also presented the facts in shocking detail. For instance, "The evidence of Tonkin [the Gulf of Tonkin incident in August of 1964 which resulted in the Tonkin Gulf Resolution] is still clouded, in part because McNamara's story was so filled with old-fashioned lies. . ."[29] Halberstam identifies the "best and the brightest" of the Kennedy and Johnson administrations then reviews the evidence; he concludes they had deceitfully manipulated the public, the Congress, and the press from the very start of the Vietnam involvement in the early 1960s.

At another level, there is My Lai 4, an event of horror, deceit, and corruption that is synonymous with the words Auschwitz, Buchenwald, Dachau, the Gulag Archipelago, and Jonestown. Seymour M. Hersh[30] investigated the massacre at My Lai 4, and the record is appalling but no less significant than

the fraudulent leadership tnat indirectly contributed to this atrocity. Those responsible for the Vietnam involvement are also responsible for the deaths and casualties that followed.

There are numerous events of corruption and deceit connected with Vietnam. The case of unauthorized air raids directed by Air Force Major General John D. Lavelle and the subsequent coverup is a classic example. An investigation by the House Armed Services Committee was conducted. A shocking disclosure from the Lavelle investigation has been reported: "Committee Chairman F. Edward Hebert (D-La.) said of the false reports during the closed hearing that 'I am not faulting you [General Lavelle] for it. In our profession up here, if they threw one of us out of office every time one of us told a lie, we would have no congressmen'."[31] This is an illustration of an arrogant public official representing a quasi corrupt government. Why should citizens trust their leaders? The rhetoric of lies and deceit have been exposed and corroborated with little difficulty. In order to put these events into perspective, the following statements by Toynbee are appropriate and should be studied: "There has always been a 'morality gap,' and this gap has been growing wider as technology has been making cumulative progress while morality has been stagnating."[32]

The Watergate Scandal. This event involving the President of the United States, White House staff members, United States Cabinet members, and other high government officials represents a deplorable record of deceit at the highest levels of our democratic system. Twenty-five men went to prison, and 11 of them worked directly for Richard M. Nixon. This exposure of wrong doing is an example of the corrupting influence of power. Although government chicanery is not unique, and indeed Watergate is just one example of administrative deceit, it should be seen as being extremely dangerous, because technology now provides the holders of powerful positions with an unprecedented means of

control. In this case, it is ironic that Nixon was incriminated with his own technological noose--the electronic bug.

This record of an incredible abuse of power by the President of the United States is frightening. Mr. H. R. Haldeman, former White House chief of staff in the Nixon administration, was sentenced February 21, 1975 on charges of conspiracy, obstruction of justice, and perjury in the cover-up of the break-in at the Watergate headquarters of the Democratic National Committee. After being convicted, Mr. Haldeman publicly said the President of the United States was responsible for the break-in and the subsequent attempted cover-up.[33]

These Watergate events have reinforced the notion of a double standard in our country. This concept of a double standard is a corrosive factor within the fiber of our social network. People in all walks of life are no longer shocked when they learn of misconduct by our leadership. There has been the promotion of a "just don't get caught" mentality. A progression of this unethical activity will enhance the decay of our institutions and social relationships.

This external morality is now in vogue, and it is in contrast to the internal morality that has been a traditional aspect of our culture. A major problem comes when people with technological sophistication conspire to promote their own estates. Media technology, a powerful force affecting public opinion, is a good example of skillful manipulation. Political campaigns in this country are now conducted with considerable help from technical experts (media people, pollsters, and other experts in the area of analysis and research using the latest computer techniques). It is becoming most difficult to run for office and win without the help of a technocrat. Candidates increasingly depend on the media to win public support. Richard Nixon's campaign against Hubert Humphrey in 1968 was skillfully managed to present the best possible media exposure

for Nixon. People within the media were also responsible for helping to unravel the Nixon administration--an interesting phenomenon that may indicate there are some redeeming virtues of technology.

The Central Intelligency Agency (CIA). David Wise and Thomas B. Ross correctly identified the CIA as the Invisible Government. In the mid-1960s Wise and Ross said, "The Invisible Government emerged in the aftermath of World War II as one of the instruments designed to insure national survival. But because it was hidden, because it operated outside of the normal Constitutional checks and balances, it posed a potential threat to the very system it was designed to protect."[34] A few examples will be provided.

Recent exposés of CIA activity should be of great concern to civilized people. It has been reported that the CIA has been involved in clandestine operations around the world involving murder, drugs, and other outrageous deeds. It has also been alleged that the CIA and the FBI used illegal tactics against United States citizens. The federal government has the technology and the resources to do great harm unless it is scrupulously monitored and controlled. These agencies frequently attempt to control and manipulate events under the auspices of national security or just plain bureaucratic hocus-pocus.

One secret operation that was conducted on citizens within the United States involved attempts by the CIA to develop mind control drugs. "During almost a quarter of a century, the CIA conducted or sponsored at least 419 secret drug-testing projects. The experiments were part of a broader program that also explored other means of mind and behavior control, such as hypnosis and even implantation of electrodes in the brain."[35] The CIA sponsored research with lysergic acid (LSD-25) under the supervision of Dr. Sidney Gottlieb in the early 1950s. Dr. Gottlieb ". . . proceeded to organize 13 subprojects that called for the support of LSD research for the purposes of

disturbance of memory, discrediting by aberrant behavior, altering sex patterns, eliciting information, enhancing suggestibility, and creating dependence."[36] In the 1930s Aldous Huxley made reference to the possibilities of drug manipulation with human beings: "There are drugs, such as a mixture of scopolamine and chloral, that enormously increase the individual's suggestibility." This knowledge of drugs and their unique properties to manipulate people did not go unnoticed by our government. Huxley and others warned us of the dangers that could come from drugs in the hands of devious people.

The CIA, with Dr. Gottlieb's direction, was most interested in LSD-25 and its properties. To help with the secret use of drugs, the CIA developed a strategy to dispense these substances. "They even recruited a well-known New York magician, the late John Mulholland, to prepare a top-secret manual on techniques for surreptitiously slipping LSD and other drugs into the drinks of unsuspecting persons."[37] On the evening of November 19, 1953, Dr. Frank R. Olson, a 43-year-old civilian biochemist, was given LSD in a drink of Cointreau without being told he was taking LSD. "He killed himself nine days later by jumping out of the window of New York's Statler Hotel at 2:30 a.m. on Saturday, November 28."[39] The CIA did not inform Mr. Olson's family that he had been given LSD without his knowledge or consent. This information was not made public until June, 1975 (22 years after the death of Mr. Olson).[40] Vice President Rockefeller's panel, looking into CIA activities, confirmed that Frank Olson was a CIA experimental victim. ". . . C.I.A. files showed that a suicide had occurred during a 10-year agency program of administering LSD to unsuspected subjects to learn its effects."[41] At the time of Dr. Olson's death, his wife, Alice, was 38 years old, his eldest son was nine, his daughter seven, and his youngest son was five. Mrs. Olson was left to provide for the family, and the children were left to grow up without a father.[42] The craft

of technology had left innocent citizens in the lurch. This is an incredible, documented account of deceit by our government--a government that was created to promote the general welfare of all its people.

It has been alleged that over the past 24 years numerous newspaper reporters have been employed by the CIA. One well-known columnist, Joseph Alsop, admitted helping the CIA.[43] In 1973 the Washington Star-News reported the CIA had about 40 United States journalists overseas on its payroll.[44] On a related project, it has been reported that prior to 1967 the CIA had secretly encouraged or underwritten the publication of more than 1,000 books, about 250 of which were published in English (many published in the United States).[45]

Gay Talese documents the close relationship between one of the nation's most influential newspapers, the New York Times, and top bureaucrats in government to include Presidents. "Lyndon Johnson, three months after he became President, visited the Times building and had lunch with eleven senior executives in the publisher's dining room."[46] Talese also reported the Times had knowledge of the Bay of Pigs invasion (with CIA involvement) and suppressed the story prior to the actual event in the name of national security. It is also a matter of record that a quiet clerk in the Times telegraph room was employed by the CIA, unknown to the Times.

The Invisible Government has been quite busy. Conceivably there is much more information concerning CIA activities that is still unknown to the public. We know relatively little about the Invisible Government.

The Tuskegee Syphilis Study. In 1932 the United States Public Health Service initiated a study of syphilis in Macon County, Alabama (Tuskegee is the county seat of Macon County) involving male, Negro subjects. This study was designed to observe untreated syphilis in about 430 Alabama male Negroes. Through bureaucratic negligence, this study developed into a longitudinal

research project beyond the time when penicillin was available. It is interesting to speculate as to why this particular research project was started and allowed to continue. Could it have anything to do with the fact that Macon County was 82.4% black of low cultural status with a high illiteracy rate? Society's unwanted and unprotected are easy pray for the craft of technological deceit by callous bureaucrats. It would have been impossible to get approval to do this study with a group of male, Causasian, Harvard students. Our elite groups do not often become intangled in the technological web. Usually elite highbrows are busy weaving the web. Part of America's poor, illiterate blacks were selected for research without knowing they were subjects of an unthical, scientific project. The technology of deceit quite often selects the unsuspecting and naive.

A formal report concerning this study was concluded by the Public Health Service within the Department of Health, Education, and Welfare on April 28, 1973.[47] A major problem with the Tuskegee Study is that untreated subjects were not administered penicillin therapy when it was available. Another serious problem is that the blacks of Macon County did know they were research subjects. The study was continued unchecked until an investigation was initiated August 28, 1972 and made public in 1973. After a review of available documents, interviews with associated parties, and pursuit of other avenues of documentation, the investigating panel concluded: "In retrospect, the Public Health Service Study of Untreated Syphilis in the male negro in Macon County, Alabama was ethically unjustified in 1932. . . .Penicillin therapy should have been made available to the participants in this study not later than 1953."[48]

Dr. Jay Katz (Adjunct Professor of Law and Psychiatry, Yale Law School), a member of the investigating Ad Hoc Advisory Panel, ". . . argued that the participants had been 'exploited, manipulated and deceived' and that the medical

profession had largely ignored the study's implication."[49] The words manipulated and deceived are used by Dr. Katz, and they represent what can happen when mindless technocrats go to work on a problem. In the early 1930s Aldous Huxley sarcastically explained how this type of situation could happen.

> One of the great achievements of science is to have developed a method which works almost independently of the people by whom it is operated. Men and women with only enough intelligence to do what they are told and only the devotion required to come to work on time can, by using the method, extend and apply scientific knowledge. These members of the intellectual proletariat of research are servants bêtes, much less interesting than successful professionals in other fields; but the method they use is a sufficient substitute for personal ability.[50]

The method used is also a substitute for personal integrity and honesty.

Subliminal Seduction. The research on subliminal cues used by advertising people has been well documented by Dr. Wilson Bryan Key, a communications expert.[51] This research indicates that attempts are being made by the media to manipulate the general public in a surreptitious manner. Subliminal stimulation comes in the form of visual or audio communications that are only perceived at the subconscious level. A word or image may be embedded in an ad, or a sound may be hidden in a recording so that it is not perceived at the conscious level. It may have an effect on the subconscious. Psychologists have confirmed that subliminal cues do have an effect on people. "The influence of subliminal stimuli has been demonstrated on a variety of behaviors: dreams, images, word associations, trait attributions, drawings, reaction time, problem solving, visual illusions, bias in intentional recall, Thematic Apprception Test stories, Rorschach content, and formal aspects of thought."[52]

It is possible to influence people without them being conscious of the fact that they are being manipulated. The effects of this influence on the subconscious may indeed be harmful to one's mental health. "The use of subliminal techniques in print communication media has been going on in the

United States at least since the World War I period. Norman Rockwell's first cover on the Saturday Evening Post during 1917 incorporated embedded SEXes [the words "sex" were subliminally hidden]. Furthermore, up to now, no one outside the trade even suspected what was going on."[53] Dr. Key states that, "Every major advertising agency has at least one embedding technician in its art department. The technique is taught in most commercial art schools. . . Words such as fuck, cunt, ass, whore, prick, and death are also used frequently as subliminal triggers to motivate purchasing behavior."[54] Very little has been done to curb this activity. In 1957 Vance Packard published The Hidden Persuaders, and on the national and state levels legislation was proposed to control subliminal cues hidden in advertising--none of the proposed bills have become law.[55]

It is most interesting to know what publications are involved in subliminal manipulation and how it is accomplished. Dr. Key found that on the front page of the New York Times (Sunday, April 30, 1972) there were subliminal words embedded. "The page's focal point was, of course, the United Press International photo of a helicopter leaving a battle area in Vietnam. To make certain the photo's sales value was increased to maximum, a mosaic of subliminal SEXes had been either double-exposed into the negative or drawn into the engraving plates. The technique does, indeed, sell the news--which sells the advertising which sells the products."[56] Selling products in this country involves big money (a full page ad in Time magazine may cost around $100,000.00 or more today), and business people want all the leverage they can get for their investment. If there is something to subliminal manipulation (and indeed there is), the business folks want to take advantage of it. "Appearing in the July 5, 1971 edition of Time magazine, on the inside back cover, the Gilbey's London Dry Gin advertisement is a classic design of subliminal art."[57] This ad, as Dr.

Key describes it, has hidden imagery of male and female genitals, words, and faces all aimed at manipulating the public.

> The Gilbey's ad was tested with over a thousand subjects. Sixty-two percent of these men and women reported feelings of sexual stimulation or excitement. Male test subjects appeared to resist a conscious response to the ad content slightly more than did the women. None of the men or women tested, however, was consciously aware of the subliminal, content, or even discovered the secret until it was explained to them after their responses were recorded. The ad appears to have been purposefully designed to reach both men and women through unconscious perceptual mechanisms.[58]

As explained, these expensive ads with subliminal words and imagery are tested prior to distribution. Advertising is big business, and as little as possible is left to chance. "Science and technology, in a twentieth-century context, are based upon exercises in symbol-making which have not liberated man from symbolic quagmires but embedded him more deeply into dependence upon symbols and what he believes they either mean or don't mean."[59]

At the conclusion of Dr. Key's 1973 book, Subliminal Seduction, he said:

> There is so much more that should have been included in this book--a Hilton Hotel room service menu, SEX embedded from breakfast through dinner; a Las Vegas Hotel Sahara travel pamphlet saturated with mosaiced SEXes; the paper cover of Eldridge Cleaver's book Soul on Ice, SEXed throughout; elementary grade textbooks, designed and marked for school administrators, loaded with every subliminal trick conceivable; the fascinating perversities of subliminally loaded Sears catalogue; the U.S. Air Force recruiting ad--full-page four-color in Life magazine--which features Scott and LEM on the surface of the moon after he had planted the Stars and Stripes, with moon landscape, dust, flag, and LEM covered in SEX mosaic; the U.S. Map behind John Chancellor during the NBC Evening News with SEX embedded across Northern Florida and Southern Georgia; the dark, erect penis that forms the lower jaw of a lion on the paper cover of Robert Ardrey's excellent book, The Social Contract; these and many, many, more.[60]

These shocking facts are just being revealed, the effect on human beings has yet to be assessed--all the evidence is not in. The manipulation of human beings with technology has been progressing at an ever increasing pace year

after year. The possibilities for human control are limited only by one's imagination. Marshall McLuhan said that, "1984 happened about 1930 only we just never noticed."[61]

Nuclear Weapons. The craft of technology with all of its destructive implications came to a zenith point in the nuclear age. Eric Hoffer has commented on the problem of dealing with nature, and the instinctive urge humans have to control it. This urge can be a path to self-destruction.

> A fateful feature of the war with nature is its circularity. Victory and defeat run into each other. Just when man seems to be within reach of his ultimate goal he is likely to find himself caught in a trap. Everywhere there are booby traps and pitfalls, and nature strikes back from unexpected quarters. A most recent example is the splitting of the atom. Man cracked nature's strongbox only to discover that he had cracked Pandora's box of ills and woes and evil spirits, and let loose the poisonous mushroom cloud of total annihilation.[62]

The world community literally lives on the brink of destruction. Nations that arm themselves with nuclear weapons may be fostering a self-fulfilling prophecy of ultimate destruction. A technique to destroy civilization has now been perfected and is constantly kept in a state of readiness. Weapons and their delivery systems have been designed and built with care and sophistication, yet accidents still happen. The official record of accidents involving airplanes carrying nuclear weapons is most disturbing. The Department of Defense has admitted to 13 specific major accidents with aircraft carrying nuclear bombs. These include: mid-air collisions, accidental jettisoning of bombs, take-off or landing crashes, and aircraft malfunctions in flight that result in crashes. This record is not given much publicity for obvious reasons. Here is a listing of dates and locations of accidents involving nuclear bombs being transported by airplanes:

1) February 5, 1958 - Georgia
2) March 11, 1958 - South Carolina
3) November 4, 1958 - Texas
4) November 26, 1958 - Louisiana

5) July 6, 1959 - Louisiana
6) October 15, 1959 - Kentucky
7) January 24, 1961 - North Carolina
8) March 14, 1961 - California
9) January 13, 1964 - Maryland
10) December 8, 1964 - Indiana
11) October 12, 1965 - Ohio
12) January 17, 1966 - Polomares, Spain
13) January 22, 1968 - Greenland[63]

In addition to these reported accidents there have been many other non-reported major accidents involving nuclear weapons in this country and abroad.*

Lieutenant Colonel E. Q. Steffes, Jr., the pilot of a B-29 that crashed August 5, 1950, said he was carrying the outer casting of an atomic bomb. This statement was made in January, 1958.[64] It was publicly announced on January 13, 1958 that a plane carrying a nuclear weapon actually crashed in this country. This admission was made to Britain by the United States government.[65] Four months later on May 15, 1958, Lieutenant General Francis N. Griswold, the Deputy Commander-in-Chief of the Strategic Air Command (SAC), categorically denied before a Congressional committee that any SAC airplanes had ever been ordered into the air with nuclear weapons aboard.[66] Two months prior to General Griswold's statement, Senator Clinton Anderson, a member of the Joint Congressional Committee on Atomic Energy, told the Senate that three accidents involving aircraft carrying nuclear weapons had been mentioned publicly but "there more likely have been at least double that amount."[67] "One accident, never officially disclosed, had taken place on foreign soil. A B-47 carrying atomic bombs had crashed and caught fire on take-off from the U.S. base at Sidi Slimane, Morocco, in 1957. The conventional explosive in the warhead had gone off, spraying pulverized plutonium downwind."[68] The B-47 belonged to SAC, and General Griswold lied to Congress on May 15, 1958.

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*The author has firsthand knowledge of accidents with nuclear weapons while serving as a nuclear weapons officer in the United States Air Force at the Defense Atomic Support Agency (Field Command) from April, 1966 to April, 1969. The author was a nuclear weapons project officer.

It is ironic that the military makes such a fetish display of honesty, integrity, and honor for the benefit of cadets at West Point, Annapolis, and the Air Force Academy, but fail to maintain these standards for officers on active duty. Perhaps, officers rationalize their lies as being part of a "good soldier's duty." General Paul Harkins, in the early days of our Vietnam involvement, consistantly misled the President of the United States by sending back overly optimistic reports. He did this because his boss, Maxwell Taylor (a friend from West Point days), wanted those kind of reports from Vietnam.

A particularly frightening account of a nuclear accident has been reported by Dr. Ralph E. Lapp. On January 24, 1961, a B-52 bomber jettisoned a 24-megaton atomic bomb over North Carolina. To prevent accidental arming and firing of nuclear weapons, six interlocking safety mechanisms had been installed and all had to be triggered in sequence to explode the bomb. "When Air Force experts rushed to the North Carolina farm to examine the weapon after the accident, they found that five of the six interlocks had been set off by the fall! Only a single switch prevented the 24-megaton bomb from detonating and spreading fire and destruction over a wide area."[69] More than likely there have been numerous accidents with aircraft carrying nuclear weapons prior to official Department of Defense admissions starting in 1958.

The nuclear weapons problem as portrayed by Hans Askenasy is exposed for what it is--a psychopathic element within humans that can emerge while working with technology.

> And do you know what over four thousand strategic missiles with twelve thousand nuclear warheads pointing at each other mean? They mean that scientists, American and Russian, designed them; that Businessmen, American and Russian built them; that politicians, American and Russian, will decide when to use them; and that generals, American and Russian, will push the buttons. Some of these men and women will sincerely believe that they are doing "the right thing;" others won't care one way or the other. But they all will tell us that they have no choice but

> to use them--in self-defense (preemptively or in retaliation), for a just and lasting peace and for mankind's ultimate glory.[70]

This kind of thinking will ultimately lead to war, and a war with nuclear weapons will probably have no clear victor. Civilized people now face a serious problem; we must control our technological capabilities or risk being destroyed with our sophisticated devices. Continued deceit by world leadership is a problem of ~~the~~ first order.

Future developments using nuclear armaments will probably involve plans for these weapons to be used in space. In fact, the capability to launch weapons into orbit has probably been approved, and perhaps put into operation. If we depend on our leaders for the truth, we are inviting disaster; the record is quite clear regarding the veracity of power hungry people in action--they are not to be trusted. A healthy skepticism is a key ingredient for people who enjoy freedom.

This ~~brief~~ record of our nation's activity with technology (Vietnam, Watergate, the CIA, the Tuskegee Study, Subliminal Seduction, and Nuclear Weapons) are only ~~brief~~ sketches that have been revealed within the last decade. It should be emphasized that these events were exposed to the public only after considerable pressure had been applied by a free press and activist citizens' groups. People in powerful positions are usually quite reluctant to reveal information concerning their activities. Daniel Ellsberg took a great risk in order to reveal classified documents that exposed governmental manipulation. David Halbertstam worked for more than two and a half years to record the activity of the "best and the brightest," and he still cannot reveal all his sources (for their own protection). Bob Woodward and Carl Bernstein, while working to uncover the Watergate scandal, feared reprisals from the White House. Most certainly, advertising people do not want the public to read Wilson Bryan Key's books. The CIA has taken legal action to have

books about themselves supressed. The potential hazards involving nuclear weapons are never made public by the Department of Defense.

What we do not know about the uses of sophisticated technology may be more frightening than what we do know. There is enough evidence available to make us at least suspicious of the future use of technology. Denis Alexander said, ". . .if we are to be brutally honest about the history of science during the past hundred years, there is no doubt that nearly every major scientific discovery has been misused. There is little evidence to suggest that, in this respect, the next hundred years are going to be any different."[71]

It may be difficult to control technology for a variety of reasons. Technology often breeds secrecy and deception with an accompanying rhetoric to soothe the public.

> Where are we going in the 1970s? One-fifth of the world scientific manpower is still employed for military purposes. Yet deeper than such sobering facts are the nagging questions about the whole role of science in society. In Britain probably less than one in four scientists have complete freedom to publish their results. About 60 percent are employed in industry, where they are restricted by commercial security, and 20 percent are employed by the government. Often society does not even know what the scientist is doing, let alone have the ability to control it.[72]

This conclusion is about where we stand regarding our knowledge of technology in a complicated society. The future may be quite difficult.

Many molecular biologists are facing a crisis of conscience equal to that faced by nuclear physicists after the development of the atomic bomb. 'Matthew Meselson, the Harvard biologist, has warned of the 'revolution in biochemistry and molecular biology, leading to the most detailed and subtle knowledge of the living process' which 'inevitably will allow man to manipulate and control living things, including himself in ways that cannot now be spelled out. . .'."[73]

We already know of manipulations being conducted on humans that are quite ingenious. Implantation of electrodes in the brain was initiated in 1928 by a Dr. Hess.

> Various types of electrodes have been planted in the brains of humans. Dr. Robert Health of Tulane University has carried out experiments on a wide range of subjects living in New Orleans. These people have electrodes permanently fitted to their heads and are free to stimulate various parts of their brain by pressing different buttons. . . It should be emphasized that these subjects are free to carry on their daily work. There is no restriction to laboratory conditions.[74]

Living in an era of sophisticated technology requires an understanding of the magnitude and speed of technical change. It may be that future generations will have to work hard just to control the available technologies as they advance. "Dr. Robert Hilliard has pointed out that at the rate at which knowledge is growing, using the word knowledge in its broadest sense, by the time the baby born today graduates from a university, the amount of knowledge in the world will be four times as great. By the time that same child is fifty years old, the amount of knowledge will be thirty-two times as great, and 97 percent of everything known in the world will have been learned since the time he was born."[75] This process represents rapid change--a type of change that presents unusual problems for the human condition.

The human element is not an exact science, and we should be cautious when attempting to apply technology to human events and social processes. "To make of human affairs a coherent, precise, predictable whole one must ignore or suppress man as he really is, and treat human nature as a mere aspect of nature."[76] The scientist must understand that in every step of scientific progress there is an element of uncertainty regarding its scope and value.[77] There should be concern and respect for the human element; this aspect of nature is not easily organized and controlled. "Human life transcends the reality of nature."[78]

Ruth Nanda Anshen has undertaken to explain the problems that man faces in the Modern era with her erudite World Perspectives series. "Judgments of value must henceforth direct technological change, for without such values man is divested of his humanity and of his need to collaborate with the very fabric of the universe in order to bestow meaning, purpose, and dignity upon his existence."[79] This theme is usually overlooked by crude, power merchants operating on a grand scale. The splendor of technology can be a powerful opiate. Being involved with technology produces a sense of superiority that tends to ignore the human condition. Technology promises to isolate humans from nature but provides no check on itself outside a system of values.

As a society we are in a continuous search for truth. "The meaning of 'meaning' is not reducible to an easy formula."[80] This search is like a struggle with many foes. The mere aquisition of knowledge does not always represent truth. We must respect the knowledge we have acquired and not be too overcome with our technological ingenuity. Technology can serve us and also deceive us. This can happen at the same time--a simultaneous event that controls in the name of reason and progress. This seems to produce a vicious cycle of deceit; we think more reason and progress will provide the technology to liberate us from an oppressive environment, yet just the opposite seems to be happening.

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